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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,481	01/27/2004	Paul Shirley	MICS:0117 (02-1051)	9550

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FLETCHER YODER (MICRON TECHNOLOGY, INC.)
P.O. BOX 692289
HOUSTON, TX 77269-2289

EXAMINER	
TOLEDO, FERNANDO L	
ART UNIT	PAPER NUMBER
2895	
MAIL DATE	DELIVERY MODE
09/14/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/765,481	SHIRLEY ET AL.	
	Examiner	Art Unit	
	Fernando L. Toledo	2895	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 July 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

The following action is issued after the decision by the BPAI dated 5/15/09 and applicant's amendment dated 7/9/09. Upon further review, the following new ground of rejection is applied against the pending claims. The examiner's Supervisor and Technology Center Director have approved of this action as indicated by their signatures below.

/John W. Cabeca/
John W. Cabeca
Director, Technology Center 2800

/N. Drew Richards/
Supervisory Patent Examiner, Art Unit 2895

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 4, 5, 7, 8 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Göttert et al. (U. S. Patent 6,482,553 B1).

3. In re claim 1, Göttert discloses (a) soft baking a substrate (graphite sample attached to silicon wafer, column 5 lines 27-29) coated with a resist (SU-8-5 resist, column 5 line 41) at a first temperature for a first predetermined period of time; and (b) after act (a), soft-baking the substrate coated with the resist at a second higher temperature for a second predetermined period of time (two-step soft bake, column 5, lines 46 - 51).

4. In re claim 4, Göttert discloses wherein during the first predetermined period of time: the resist remains fluid; air trapped under the resist expands through the resist to the surface; and the resist flows back to its original conformal shape (column 5, lines 46 – 51).

5. In re claim 5, Göttert discloses wherein the semiconductor wafer is subjected to a temperature in the range of 30-90 °C during the first predetermined period of time (column 5, lines 46 - 51).

6. In re claim 7, Göttert discloses wherein the first predetermined period of time is more than 90 seconds (column 5, lines 46 - 51).

7. In re claim 8, Göttert discloses wherein the higher temperature is in the range of 90 - 150 °C (column 5, lines 46 - 51).

8. In re claim 11, Göttert discloses wherein the second predetermined period of time is more than 90 seconds (column 5, lines 46 – 51).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 2, 3, 6, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Göttert as applied to claim 1 above.

11. In re claim 2, Göttert does not explicitly discloses wherein no resist craters are formed.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the resist of Göttert be substantially free of craters, since the resist of Göttert is treated in the same fashion as claimed by Applicant, hence similar materials treated in a similar way should yield similar results.

12. In re claim 3, Göttert does not explicitly disclose that the resist hardens; and the air trapped under the resist does not posses sufficient energy to expand through the resist.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the resist of Göttert harden, since Göttert discloses that the soft bake is carried out just above the glass transition (column 5, line 49); and thus one of ordinary skill in the art would conclude that the air trapped under the resist does not posses sufficient energy to expand through the resist since similar materials are treated in a similar way it should yield similar results.

13. In re claim 6, Göttert does not disclose that the period of time is less than 90 seconds.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the time period be less than 90 seconds, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller,* 105 USPQ 233. Note that the specification contains no disclosure of either the critical nature of the claimed time or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen time or upon another variable recited in a claim, the Applicant must show that the chosen time is critical. *In re Woodruf,* 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990). In addition, the selection of time, is obvious because it is a matter of determining optimum process conditions by routine experimentation with a limited number of species of result effective variables. These claims are prima facie obvious without showing that the claimed ranges achieve unexpected results relative to the prior art range. In re Woodruff, 16 USPQ2d 1935, 1937 (Fed. Cir. 1990). See also In re Huang, 40 USPQ2d 1685, 1688 (Fed. Cir.

1996)(claimed ranges or a result effective variable, which do not overlap the prior art ranges, are unpatentable unless they produce a new and unexpected result which is different in kind and not merely in degree from the results of the prior art). See also In re Boesch, 205 USPQ 215 (CCPA) (discovery of optimum value of result effective variable in known process is ordinarily within skill or art) and In re Aller, 105 USPQ 233 (CCPA 1995) (selection of optimum ranges within prior art general conditions is obvious).

14. In re claim 9, Göttert does not disclose that higher temperature is in the range of 100 – 130 °C.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the higher temperature in the range of 100 – 130 °C, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller,* 105 USPQ 233. Note that the specification contains no disclosure of either the critical nature of the claimed temperature range or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen temperature range or upon another variable recited in a claim, the Applicant must show that the chosen temperature range is critical. *In re Woodruf,* 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990). In addition, the selection of temperature, is obvious because it is a matter of determining optimum process conditions by routine experimentation with a limited number of species of result effective variables. These claims are prima facie obvious without showing that the claimed ranges achieve unexpected results relative to the prior art range. In re Woodruff, 16 USPQ2d 1935, 1937 (Fed. Cir. 1990). See also In re Huang, 40 USPQ2d 1685, 1688 (Fed. Cir. 1996)(claimed ranges or a result effective variable,

which do not overlap the prior art ranges, are unpatentable unless they produce a new and unexpected result which is different in kind and not merely in degree from the results of the prior art). See also In re Boesch, 205 USPQ 215 (CCPA) (discovery of optimum value of result effective variable in known process is ordinarily within skill or art) and In re Aller, 105 USPQ 233 (CCPA 1995) (selection of optimum ranges within prior art general conditions is obvious).

15. In re claim 10, Göttert does not disclose that the period of time is less than 90 seconds.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the time period be less than 90 seconds, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller,* 105 USPQ 233. Note that the specification contains no disclosure of either the critical nature of the claimed time or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen time or upon another variable recited in a claim, the Applicant must show that the chosen time is critical. *In re Woodruf,* 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990). In addition, the selection of time, is obvious because it is a matter of determining optimum process conditions by routine experimentation with a limited number of species of result effective variables. These claims are prima facie obvious without showing that the claimed ranges achieve unexpected results relative to the prior art range. In re Woodruff, 16 USPQ2d 1935, 1937 (Fed. Cir. 1990). See also In re Huang, 40 USPQ2d 1685, 1688 (Fed. Cir. 1996)(claimed ranges or a result effective variable, which do not overlap the prior art ranges, are unpatentable unless they produce a new and unexpected result which is different in kind and not merely in degree from the results of the prior art). See also In re Boesch, 205 USPQ 215

(CCPA) (discovery of optimum value of result effective variable in known process is ordinarily within skill or art) and In re Aller, 105 USPQ 233 (CCPA 1995) (selection of optimum ranges within prior art general conditions is obvious).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fernando L. Toledo whose telephone number is 571-272-1867. The examiner can normally be reached on Mon-Fri 8am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Richards can be reached on 571-272-1736. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Fernando L. Toledo/
Primary Examiner, Art Unit 2895

flt
8 September 2009